NORTHVIEW SUBDIVISION (PWS 5240040)
SOURCE WATER ASSESSMENT FINAL REPORT

March 31, 2005

State of Idaho
Department of Environmental Quality

Executive Summary

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. This assessment is based on a land use inventory of the designated assessment area and sensitivity factors associated with the wells and aquifer characteristics.

This report, *Source Water Assessment for Northview Subdivision, Hagerman, Idaho*, describes the public drinking water system, the boundaries of the zones of water contribution, and the associated potential contaminant sources located within these boundaries. This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. **The results should <u>not be</u> used as an absolute measure of risk and they should <u>not be</u> used to undermine public confidence in the water system.**

The Northview Subdivision (PWS #5240040) drinking water system consists of two actively used sources; East Well and West Well. The system currently serves approximately 58 people through 26 connections.

Final susceptibility scores are derived from equally weighting system construction scores, hydrologic sensitivity scores, and potential contaminant/land use scores. Therefore, a low rating in one or two categories coupled with a higher rating in other category(ies) results in a final rating of low, moderate, or high susceptibility. With the potential contaminants associated with most urban and heavily agricultural areas, the best score a well can get is moderate. Potential contaminants are divided into four categories, inorganic contaminants (IOCs, e.g. nitrates, arsenic), volatile organic contaminants (VOCs, e.g. petroleum products), synthetic organic contaminants (SOCs, e.g. pesticides), and microbial contaminants (e.g. bacteria). As different wells can be subject to various contamination settings, separate scores are given for each type of contaminant.

In terms of total susceptibility both wells had the same ratings for each potential contaminant category. Both East Well and West Well rated automatically high for IOCs, VOCs, SOCs, and moderate for microbial bacteria. The automatically high ratings are due to potential contaminants existing within 50 feet of both wellheads (Sanitary Survey, 2004). If not for the automatically high ratings, the system would have rated moderate for all potential contaminant categories. System construction rated moderate for both wells, and hydrologic sensitivity rate low. Land use rated high susceptibility for IOCs, VOCs, SOCs, and microbial potential contaminants (Table 1).

According to the State Drinking Water Information System (SDWIS), no VOCs, SOCs, or microbial bacteria have ever been detected in either well's tested water. The IOCs nitrate, fluoride, and sodium have been detected; however concentrations have been significantly lower than maximum contaminant levels (MCLs) as set by the Environmental Protection Agency (EPA).

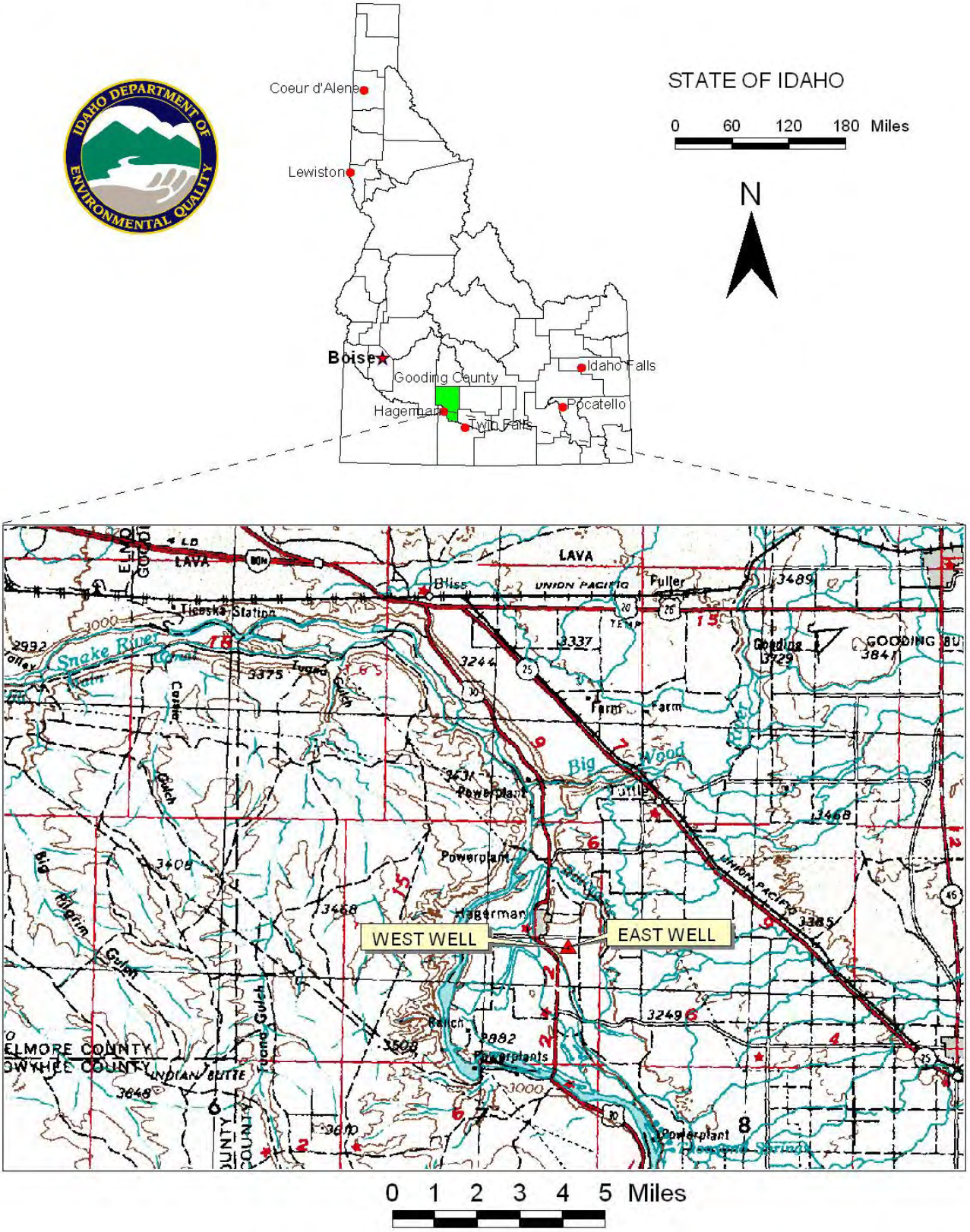
This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources. If the system should need to expand in the future, new well sites should be located in areas with as few potential sources of contamination as possible, and the site should be reserved and protected for this specific use.

For the Northview Subdivision, drinking water protection activities should first focus on correcting any deficiencies outlined in the sanitary survey (an inspection conducted every five years with the purpose of determining the physical condition of a water system's components and its capacity). Actions should be taken to maintain a 50-foot radius circle around the wellheads clear of potential contaminants. Any contaminant spills within the delineation should be carefully monitored and dealt with. As much of the designated assessment areas are outside the direct jurisdiction of Northview Subdivision, collaboration and partnerships with state and local agencies should be established and are critical to success.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus of any drinking water protection plan as the delineation contains some urban and residential land uses. Public education topics could include proper lawn and garden care practices, household hazardous waste disposal methods, proper care and maintenance of septic systems, and the importance of water conservation to name but a few. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the EPA. Drinking water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Soil Conservation Commission, the local Soil and Water Conservation District, and the Natural Resources Conservation Service.

A community must incorporate a variety of strategies in order to develop a comprehensive drinking water protection plan, be they regulatory in nature (i.e. zoning, permitting) or non-regulatory in nature (i.e. good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact the Twin Falls Regional Office of the Department of Environmental Quality or the Idaho Rural Water Association.

FIGURE 1 Site Vicinity Map of Northview Subdivision



SOURCE WATER ASSESSMENT FOR NORTHVIEW SUBDIVISION, HAGERMAN, IDAHO

Section 1. Introduction - Basis for Assessment

The following sections contain information necessary to understand how and why this assessment was conducted. **It is important to review this information to understand what the ranking of this assessment means.** Maps showing the delineated source water assessment area and the inventory of significant potential sources of contamination identified within that area are included. The list of significant potential contaminant source categories and their rankings used to develop the assessment also is included.

Background

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative susceptibility to contaminants regulated by the Safe Drinking Water Act. This assessment is based on a land use inventory of the delineated assessment area and sensitivity factors associated with the wells and aquifer characteristics.

Level of Accuracy and Purpose of the Assessment

The Idaho Department of Environmental Quality (DEQ) is required by the U.S. Environmental Protection Agency (EPA) to assess the over 2,900 public drinking water sources in Idaho for their relative susceptibility to contaminants regulated by the Safe Drinking Water Act. This assessment is based on a land use inventory of the delineated assessment area, sensitivity factors associated with the wells, and aquifer characteristics. All assessments for sources active prior to 1999 were completed by May of 2003. SWAs for sources activated post-1999 are being developed on a case-by-case basis. The resources and time available to accomplish assessments are limited. An in-depth, site-specific investigation of each significant potential source of contamination is not possible. **Therefore, this assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. The results should <u>not be</u> used as an absolute measure of risk and they should <u>not be</u> used to undermine public confidence in the water system.**

The ultimate goal of the assessment is to provide data to local communities to develop a protection strategy for their drinking water supply system. The DEQ recognizes that pollution prevention activities generally require less time and money to implement than treatment of a public water supply system once it has been contaminated. DEQ encourages communities to balance resource protection with economic growth and development. The decision as to the amount and types of information necessary to develop a drinking water protection program should be determined by the local community based on its own needs and limitations. Wellhead or drinking water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

Section 2. Conducting the Assessment

General Description of the Source Water Quality

The Northview Subdivision (PWS #5240040) drinking water system consists of two actively used sources; East Well and West Well. The system currently serves approximately 58 people through 26 connections.

According to the State Drinking Water Information System (SDWIS), no VOCs, SOCs, or microbial bacteria have ever been detected in either well's tested water. The IOCs nitrate, fluoride, and sodium have been detected; however concentrations have been significantly lower than the MCLs set by the EPA.

Defining the Zones of Contribution – Delineation

The delineation process establishes the physical area around a well that will become the focal point of the assessment. The process includes mapping the boundaries of the zone of contribution into time-of-travel (TOT) zones (zones indicating the number of years necessary for a particle of water to reach a well) for water in the aquifer. DEQ performed the delineation using a computer model approved by the EPA in determining the 3-year (Zone 1B), 6-year (Zone 2), and 10-year (Zone 3) TOT for water associated with the Snake River Plain aquifer in the vicinity of the Northview Subdivision. The computer model used site-specific data from a variety of sources including local area well logs, and hydrogeologic reports (detailed below).

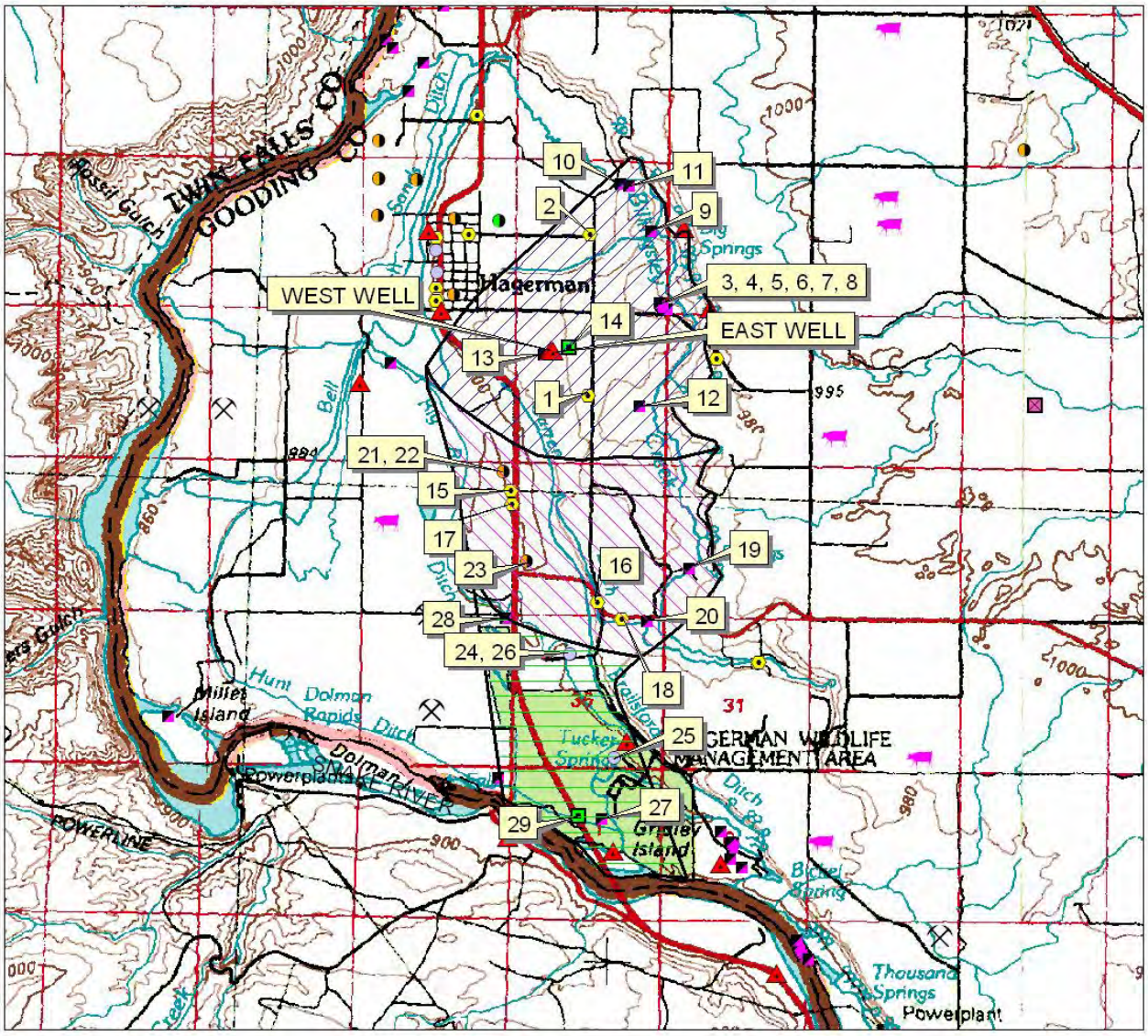
Hydrogeologic Conceptual Model

The predominant rock type of the eastern Snake River Plain is Quaternary basalt of the Snake River Group (Garabedian, 1992, Whitehead, 1986). Basalt is interbedded with terrestrial and lacustrine sediments and fills a structural basin formed by faulting on the northwest and down warping and faulting on the southeast and is greater than several thousand feet deep at the center of the basin. Basalt of the Snake River Group is the major rock unit in the eastern Snake River Plain aquifer. Hydraulic conductivity of the basalt ranges from 4x10-4 to 4x10-1 ft/s.

The wells of interest are located near Hagerman between the Snake River and the basalt canyon that forms the western terminus of the Snake River Plain aquifer. Ground water from the eastern Snake River Plain aquifer flows from the northeast to the southwest along the major axis of the eastern Snake River Plain and discharges to the Snake River as spring flow. As much as 4,800 cfs is discharged to the reach of the Snake River near Hagerman between Buhl and King Hill. Some of the water is captured as it flows from the canyon wall but much of it flows down through the talus below the canyon and into the Snake River. Almost the entire western flow of the aquifer discharges through the face of the canyon wall to the Snake River.

The wells are located below the canyon rim and probably obtain water from a different geologic unit than basalt that is exposed in the canyon. Tertiary basalt underlies the area of the wells and probably the quaternary basalt of the eastern Snake River Plain Garabedian, 1992, Whitehead, 1986). The hydraulic conductivity of the Tertiary basalt is highly variable but it is probably much lower than quaternary basalts and may act as a hydraulic barrier to flow from the Eastern Snake River Plain.

Figure 2. Northview Subdivistion Delineation Map and Potential Contaminant Source Locations



LEGEND

SWA Delineations

- 3 Year TOT (1B)
- 6 Year TOT (2)
- 10 Year TOT (3)
- Wellheads (PWS)
- Toxics Release Inventory - '98
- CERCLA SITES
- RCRA Sites
- Business Mailing List
- SARA Title III Sites
- Active Dairy Sites
- Proposed Dairy Sites
- Closed UST Sites
- Open UST Sites
- LUST Sites
- AST Locations
- NPDES Locations
- Mine Locations
- Recharge Points
- Deep Injection Wells
- Group 1 Sites
- Cyanide Sites
- Streets (100k)
- Boise VOCs
- LandFills
- WLAP

0 1 2 Miles

N

PWS# 5240040
Well #1

Although there may not be a hydraulic connection between the quaternary basalt and the tertiary basalt water from the spring discharge flowing through the talus and shallow alluvium may recharge the tertiary basalts that form the aquifer penetrated by the wells. Although pumping from the wells may not affect flow in the quaternary basalts of the eastern Snake Plain aquifer, the wells will capture water issuing from the springs through the talus and therefore effectively extend the capture zone of the wells across the canyon rim into the eastern Snake River Plain.

Model Description

The WhAEM analytical model was used to capture zone for the wells. The choice of boundary conditions greatly affects the results of the modeling because the boundaries are so near the wells. The wells are located about 4,000 ft from the Snake River on the west and the 1,200 ft from the base of the canyon wall. The Snake River was modeled as a constant head boundary fixed at 2800-2888 feet. A fixed head boundary of 2820 feet was located along the base of the canyon wall. The water level in the eastern Snake Plain aquifer is about 3100 feet. The direction of ground water flow is from the base of the canyon to the Snake River. With these boundary conditions the wells will capture water from the east which represents spring discharge from the eastern Snake River Plain aquifer.

There are no pumping tests available so the choice of hydraulic conductivity is very uncertain. One set of specific capacity data from a nearby well indicates a value of .25 ft/d but this seems too low and the wells would quickly dry up at 300 gpm. Using the model, a minimum value of 25 ft/d was required to ensure that the wells did not go dry when both wells were pumping at the same time. The value could be higher but an aquifer test would be required to determine a more accurate value.

The final capture zone delineation stops at the canyon boundary but it may be appropriate to extend the boundary across the canyon even through the two aquifers may not be a continuous unit. Both wells were assumed to be pumping at the same time.

The delineated area for the Northview Subdivision well is approximately bounded by Highway 30 to the east, the Snake River to the south, the river canyon walls to the east, and the city of Hagerman to the north. The actual data used in determining the source water assessment delineation area is available from DEQ upon request.

Identifying Potential Sources of Contamination

A potential source of contamination is defined as any facility or activity that stores, uses, or produces, as a product or by-product, the contaminants regulated under the Safe Drinking Water Act and has a sufficient likelihood of releasing such contaminants at levels that could pose a concern relative to drinking water sources. The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of ground water contamination. The locations of potential sources of contamination within the delineation areas were obtained by field surveys conducted by DEQ and from available databases.

It is important to understand that a release may never occur from a potential source of contamination provided they are using best management practices. Many potential sources of contamination are regulated at the federal level, state level, or both to reduce the risk of release. Therefore, when a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation. What it does mean is that the potential for contamination exists due

to the nature of the business, industry, or operation. There are a number of methods that water systems can use to work cooperatively with potential sources of contamination, including educational visits and inspections of stored materials. Many owners of such facilities may not even be aware that they are located near a public water supply well.

Contaminant Source Inventory Process

A two-phased contaminant inventory of the study area was conducted in March and April, 2005. The first phase involved identifying and documenting potential contaminant sources within the Northview Subdivision source water assessment area (Figure 2) through the use of computer databases and Geographic Information System (GIS) maps developed by DEQ. The second, or enhanced, phase of the contaminant inventory involved contacting the operator to identify and add any additional potential sources in the delineated areas.

In this case, DEQ databases identified 22 potential contaminant sources within the delineated area (Figure 2). These sources include aquaculture discharge, fish hatcheries, ranches, painters, and an underground storage tank. Highway 30, the Snake River, and other surface water bodies were also considered a potential source of contaminants due to their potential for transporting contaminants. These sources could potentially contribute IOCs, VOCs, SOCs, or microbial bacteria to ground water. In addition, land use within the area surrounding the Northview Subdivision wells is predominately irrigated agriculture, which was considered as a potential source of nitrates.

Section 3. Susceptibility Analyses

The well's susceptibility to contamination was ranked as high, moderate, or low risk according to the following considerations: hydrologic characteristics, physical integrity of the well, land use characteristics, and potentially significant contaminant sources. The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. Therefore, a high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking that is derived for each well is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. Appendix A contains the susceptibility analysis worksheet. The following summaries describe the rationale for the susceptibility ranking.

Hydrologic Sensitivity

The hydrologic sensitivity of a well is dependent upon four factors: the surface soil composition, the material in the vadose zone (between the land surface and the water table), the depth to first ground water, and the presence of a 50-foot thick fine-grained zone (aquitard) above the producing zone of the well. Slowly draining soils such as silt and clay typically are more protective of ground water than coarse-grained soils such as sand and gravel. Similarly, fine-grained sediments in the subsurface and a water depth of more than 300 feet protect the ground water from contamination.

Both Northview Subdivision wells rated moderate for hydrologic sensitivity. The Natural Resource Conservation Service characterized areas soils as poorly- to moderately-drained, a setting which allows for surface-related potential contaminants to have less vertical mobility and be more protective of ground water. In addition, the well log indicated that the vadose zone is composed of predominantly impermeable materials, and an aquitard is present above the producing zone of the well. The water table is less than 300 feet below ground surface (bgs),

Well Construction

Well construction directly affects the ability of the well to protect the aquifer from contaminants. System construction scores are reduced when information shows that potential contaminants will have a more difficult time reaching the intake of the well. Lower scores imply a system is less vulnerable to contamination. For example, if the well casing and annular seal both extend into a low permeability unit, then the possibility of contamination is reduced and the system construction score goes down. If the highest production interval is more than 100 feet below the water table, then the system is considered to have better buffering capacity. If the wellhead and surface seal are maintained to standards, as outlined in sanitary surveys, then contamination down the well bore is less likely. If the well is protected from surface flooding and is outside the 100-year floodplain, then contamination from surface events is reduced.

East Well was drilled in 1996 to a depth of 365 feet below ground surface (bgs). A 10-inch diameter (0.38 inches thick) casing extends 145 feet bgs into brown clay, and is an uncased hole below that. A bentonite surface seal was placed to 50 feet bgs into brown clay.

West well, only approximately 30 feet from East Well, had very similar construction. West well was drilled in 1996 to a depth of 360 feet bgs. A 10-inch diameter (0.38 inches thick) casing extends 144 feet bgs into brown clay, and is an uncased hole below that. A bentonite surface seal was placed to 50 feet bgs into brown clay.

Both wells rated moderate for system construction. Both wells are located outside of a 100-year floodplain, and according to the well log, the casing and annular seal extend into low permeability units. In addition, the sanitary survey (2004) indicates that both the surface seal and wellhead are maintained. The highest production does not come from more than 100 feet below static water depth.

Current PWS well construction standards can be more stringent than when a well(s) was constructed. The Idaho Department of Water Resources *Well Construction Standards Rules* (1993) require all PWSs to follow DEQ standards as well. IDAPA 58.01.08.550 requires that PWSs follow the *Recommended Standards for Water Works* (1997) during construction. Some of the regulations deal with screening requirements, aquifer pump tests, use of a down-turned casing vent, and thickness of casing. Table 1 of the *Recommended Standards for Water Works* (1997) lists the required steel casing thickness for various diameter wells. Ten-inch diameter wells require a casing thickness of 0.365-inches. Because neither well's construction meets all current standards, each well was assessed an additional system construction point.

Potential Contaminant Sources and Land Use

Land use for both East Well and West Well rated high susceptibility for IOCs, VOCs, SOCs, and for microbials. The high percentage of agricultural lands and the overall number of potential contaminant sources contributed the highest amount to the ratings (Table 2).

Final Susceptibility Ranking

A detection above a drinking water standard MCL, any detection of a VOC or SOC, or a detection of total coliform bacteria or fecal coliform bacteria at the wellhead will automatically give a high susceptibility rating to a well despite the land use of the area because a pathway for contamination already exists. Additionally, potential contaminant sources within 50 feet of a wellhead will automatically lead to a high susceptibility rating. Hydrologic sensitivity and system construction scores are heavily weighted in the final scores. Having multiple potential contaminant sources in the 0 to 3-year time of travel zone (Zone 1B) contribute greatly to the overall ranking. In this case, both wells rated automatically high for IOCs, VOCs, and SOCs, because according to the 2004 Sanitary Survey, potential contaminants were being stored within 50 feet of both wells.

Table 1. Summary of Northview Subdivision Susceptibility Evaluation

Well	Susceptibility Scores[1]									
	Hydrologic Sensitivity	Contaminant Inventory				System Construction	Final Susceptibility Ranking			
		IOC	VOC	SOC	Microbials		IOC	VOC	SOC	Microbials
East Well	L	H	H	H	H	M	H*	H*	H*	M
West Well	L	H	H	H	H	M	H*	H*	H*	M

[1]H = High Susceptibility, M = Moderate Susceptibility, L = Low Susceptibility,
IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical
H* = automatically high rating due to potential contaminants within 50 feet of well

Susceptibility Summary

In terms of total susceptibility both wells had the same ratings for each potential contaminant category. Both East Well and West Well rated automatically high for IOCs, VOCs, SOCs, and moderate for microbial bacteria. The automatically high ratings are due to potential contaminants existing within 50 feet of both wellheads (Sanitary Survey, 2004). If not for the automatically high ratings, the system would have rated moderate for all potential contaminant categories. System construction rated moderate for both wells, and hydrologic sensitivity rate low. Land use rated high susceptibility for IOCs, VOCs, SOCs, and microbial potential contaminants (Table 1).

According to the State Drinking Water Information System (SDWIS), no VOCs, SOCs, or microbial bacteria have ever been detected in either well's tested water. The IOCs nitrate, fluoride, and sodium have been detected; however concentrations have been significantly lower than MCLs as set by the EPA.

Section 4. Options for Drinking Water Protection

The susceptibility assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what the susceptibility ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

An effective drinking water protection program is tailored to the particular local drinking water protection area. A community with a fully developed drinking water protection program will incorporate many strategies. For Northview Subdivision, drinking water protection activities should first focus on correcting any deficiencies outlined in the sanitary survey. Actions should be taken to keep a 50-foot radius circle clear around the wellheads. Any spills within the delineation should be carefully monitored and dealt with. As much of the designated protection area is outside the direct jurisdiction of Northview Subdivision, making collaboration and partnerships with state and local agencies and industry groups are critical to the success of drinking water protection. The well should maintain sanitary standards regarding wellhead protection.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A public education program should be a primary focus of any drinking water protection plan as the delineation is near residential land uses areas. Public education topics could include proper household hazardous waste disposal methods, proper care and maintenance of septic systems, and the importance of water conservation to name but a few. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the EPA.

A community must incorporate a variety of strategies in order to develop a comprehensive drinking water protection plan, be they regulatory in nature (i.e. zoning, permitting) or non-regulatory in nature (i.e. good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact the Twin Falls Regional Office of the DEQ or the Idaho Rural Water Association.

Assistance

Public water suppliers and others may call the following DEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the DEQ office for preliminary review and comments.

Twin Falls Regional DEQ Office (208) 736-2190

State DEQ Office (208) 373-0502

Website: http://www.state.id.us/deq

Water suppliers serving fewer than 10,000 persons may contact Melinda Harper (mlharper@idahoruralwater.com), Idaho Rural Water Association, at 1-208-343-7001 for assistance with drinking water protection (formerly wellhead protection) strategies.

POTENTIAL CONTAMINANT INVENTORY
LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as ASuperfund≅ is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.

References Cited

Enhanced Sanitary Survey. Northview Subdivision. July, 2004.

Great Lakes-Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers, 1997. "Recommended Standards for Water Works."

Idaho Department of Environmental Quality, 1997. Design Standards for Public Drinking Water Systems. IDAPA 58.01.08.550.01.

Idaho Department of Water Resources, 1993. Administrative Rules of the Idaho Water Resource Board: Well Construction Standards Rules. IDAPA 37.03.09.

Idaho Division of Environmental Quality, 1999, Idaho Source Water Assessment Plan, October, 39 p.

Garabedian, S.P., 1992. Regional Aquifer System Analysis—Snake River Plain, Idaho, U.S. Geological Survey Professional Paper 1408-F, 102 p.

Whitehead, R.L., 1986. Geohydrologic framework of the Snake River Plain, Idaho and eastern Oregon: U.S. Geological Survey Hydrologic Investigations Atlas HA-681, scale 1:1,000,000, 3 sheets.

2004 Sanitary Survey

Appendix A

Northview Subdivision Susceptibility Analysis Worksheets

The final scores for the susceptibility analysis were determined using the following formulas:

1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.2)

2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.375)

Final Susceptibility Scoring:

0 - 5 Low Susceptibility

6 - 12 Moderate Susceptibility

≥ 13 High Susceptibility

Ground Water Susceptibility Report Public Water System Name : Northview Subdivision Well: EAST WELL
Public Water System Number: 3440034

1. System Construction		SCORE				
Drill Date	7/16/1996					
Driller Log Available	YES					
Sanitary Survey (if yes, indicate date of last survey)	YES	2004				
Well meets all IDWR construction standards	NO	1				
Wellhead and surface seal maintained	YES	0				
Casing and annular seal extend to low permeability unit	YES	0				
Highest production 100 feet below static water level	NO	1				
Well located outside the 100 year flood plain	YES	0				
Total System Construction Score		2				
2. Hydrologic Sensitivity						
Soils are poorly to moderately drained	YES	0				
Vadose zone composed of gravel, fractured rock or unknown	NO	0				
Depth to first water > 300 feet	NO	1				
Aquitard present with > 50 feet cumulative thickness	YES	0				
Total Hydrologic Score		1				
3. Potential Contaminant / Land Use - ZONE 1A			IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	IRRIGATED AGRICULTURE		2	2	2	2
Farm chemical use high	YES		2	0	2	
IOC, VOC, SOC, or Microbial sources in Zone 1A	YES		YES	YES	YES	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A			4	2	4	2
Potential Contaminant / Land Use - ZONE 1B						
Contaminant sources present (Number of Sources)	YES		15	4	11	11
(Score = # Sources X 2) 8 Points Maximum			8	8	8	8
Sources of Class II or III leacheable contaminants or	YES		2	2	2	
4 Points Maximum			2	2	2	
Zone 1B contains or intercepts a Group 1 Area	NO		0	0	0	0
Land use Zone 1B	>50% Agricultural Land		4	4	4	4
Potential Contaminant Source / Land Use Score - Zone I			18	16	18	14
Potential Contaminant / Land Use - ZONE II						
Contaminant Sources Present	YES		2	2	2	
Sources of Class II or III leacheable contaminants or	YES		1	1	1	
Land Use Zone II	>50% Agricultural Land		2	2	2	
Potential Contaminant Source / Land Use Score - Zone II			5	5	5	0
Potential Contaminant / Land Use - ZONE III						
Contaminant Source Present	YES		1	1	1	
Sources of Class II or III leacheable contaminants or	YES		1	1	1	
Is there irrigated agricultural lands that occupy > 50% of	NO		0	0	0	
Total Potential Contaminant Source / Land Use Score - Zone III			2	2	2	0
Cumulative Potential Contaminant / Land Use Score			25	23	25	14
Total Potential Contaminant Source / Land Use Score			5(H)	5(H)	5(H)	5(H)
4. Final Susceptibility Source Score			8(M)	8(M)	8(M)	8(M)
5. Final Well Ranking			Auto-High	Auto-High	Auto-High	Auto-High

Ground Water Susceptibility Report Public Water System Name : Northview Subdivision Well: WEST WELL
Public Water System Number: 3440034

1. System Construction		SCORE			
Drill Date	7/18/1996				
Driller Log Available	YES				
Sanitary Survey (if yes, indicate date of last survey)	YES	2004			
Well meets all IDWR construction standards	NO	1			
Wellhead and surface seal maintained	YES	0			
Casing and annular seal extend to low permeability unit	YES	0			
Highest production 100 feet below static water level	NO	1			
Well located outside the 100 year flood plain	YES	0			
Total System Construction Score		2			
2. Hydrologic Sensitivity					
Soils are poorly to moderately drained	YES	0			
Vadose zone composed of gravel, fractured rock or unknown	NO	0			
Depth to first water > 300 feet	NO	1			
Aquitard present with > 50 feet cumulative thickness	YES	0			
Total Hydrologic Score		1			
3. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	IRRIGATED AGRICULTURE	2	2	2	2
Farm chemical use high	YES	2	0	2	
IOC, VOC, SOC, or Microbial sources in Zone 1A	YES	YES	YES	YES	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A		4	2	4	2
Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	YES	15	4	11	11
(Score = # Sources X 2) 8 Points Maximum		8	8	8	8
Sources of Class II or III leacheable contaminants or	YES	2	2	2	
4 Points Maximum		2	2	2	
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use Zone 1B	>50% Agricultural Land	4	4	4	4
Potential Contaminant Source / Land Use Score - Zone I		18	16	18	14
Potential Contaminant / Land Use - ZONE II					
Contaminant Sources Present	YES	2	2	2	
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
Land Use Zone II	>50% Agricultural Land	2	2	2	
Potential Contaminant Source / Land Use Score - Zone II		5	5	5	0
Potential Contaminant / Land Use - ZONE III					
Contaminant Source Present	YES	1	1	1	
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
Is there irrigated agricultural lands that occupy > 50% of	NO	0	0	0	
Total Potential Contaminant Source / Land Use Score - Zone III		2	2	2	0
Cumulative Potential Contaminant / Land Use Score		25	23	25	14
Total Potential Contaminant Source / Land Use Score		5(H)	5(H)	5(H)	5(H)
4. Final Susceptibility Source Score		8(M)	8(M)	8(M)	8(M)
5. Final Well Ranking		Auto-High	Auto-High	Auto-High	Auto-High

Appendix B

Table 2
Potential Contaminant Inventory

Table 2. Northview Subdivision, East Well and West Well, Potential Contaminant Inventory

SITE	Source Description[1]	TOT[2] ZONE	Source of Information	Potential Contaminants[3]
1	Ranch	0-3 YR	Database Search	IOC, VOC, SOC, Microbials
2	Fish Hatchery	0-3 YR	Database Search	IOC, SOC, Microbials
3, 4, 5, 6, 7, 8	NPDES Site, Aquaculture Discharge	0-3 YR	Database Search	IOC, SOC, Microbials
9	NPDES Site, Aquaculture Discharge	0-3 YR	Database Search	IOC, SOC, Microbials
10	NPDES Site, Aquaculture Discharge	0-3 YR	Database Search	IOC, SOC, Microbials
11	NPDES Site, Aquaculture Discharge	0-3 YR	Database Search	IOC, SOC, Microbials
12	NPDES Site, Aquaculture Discharge	0-3 YR	Database Search	IOC, SOC, Microbials
13	NPDES Site, Aquaculture Discharge	0-3 YR	Database Search	IOC, SOC, Microbials
14	SARA Site	0-3 YR	Database Search	IOC, VOC, SOC, Microbials
15	Ranch	3-6 YR	Database Search	IOC, VOC, SOC
16	Painters	3-6 YR	Database Search	VOC, SOC
17	Fish Packers	3-6 YR	Database Search	IOC, SOC
18	Fish Hatchery	3-6 YR	Database Search	IOC, SOC
19	NPDES Site, Aquaculture Discharge	3-6 YR	Database Search	IOC, SOC
20	NPDES Site, Aquaculture Discharge	3-6 YR	Database Search	IOC, SOC
21, 22	Deep Injection Well	3-6 YR	Database Search	IOC, SOC
23	Deep Injection Well	3-6 YR	Database Search	IOC, SOC
24, 26	LUST Site, UST Site; cleanup incomplete, impact:ground water	6-10 YR	Database Search	VOC, SOC
25	UST Site; government, closed	6-10 YR	Database Search	VOC, SOC
27	NPDES Site, Aquaculture Discharge	6-10 YR	Database Search	IOC, SOC
28	NPDES Site, Aquaculture Discharge	6-10 YR	Database Search	IOC, SOC
29	SARA Site	6-10 YR	Database Search	IOC, VOC, SOC
	Creeks/Canals/Springs	0-3, 3-6, 6-10 YR	Map	IOC, VOC, SOC, Microbials
	Snake River	6-10 YR	Map	IOC, VOC, SOC

[1] UST Site = Underground Storage Tank, LUST = Leaking Underground Storage Tank, NPDES = National Pollutant Discharge Elimination System, SARA = Superfund Authorization Recovery Act

[2] TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead

VOC = volatile organic chemical